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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,577	12/03/2001	Steven M. Lefkowitz	10980852-1	8145

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AGILENT TECHNOLOGIES, INC.  
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EXAMINER

FORMAN, BETTY J

ART UNIT

PAPER NUMBER

1634

DATE MAILED: 05/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/005,577	LEFKOWITZ ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 1-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 31-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                              | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>12/03/01</u> | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group II, Claims 31-48 in papers filed 15 April 2003 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Drawings***

2. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated as described in the specification on page 9. See MPEP § 608.02(g).

A proposed drawing correction or corrected drawings **are required in reply to the Office action** to avoid abandonment of the application. The objection to the drawings will **not** be held in abeyance.

### ***Claim Objections***

3. Claim 47 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel

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the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 31-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 31-39 are indefinite in Claim 31 because the claim is drawn to a process for preparing a solid support but the method steps do not require or describe solid support preparation. It is suggested that Claim 31 be amended to define steps for preparing the solid support.

b. Claims 39 and 48 are each indefinite in the recitation "further comprising an additional non-nucleotidic polymer tethered to the surface coating" because Claim 31, from which Claim 39 depends, is drawn to a process for preparing a solid support. However, the recitation of Claim 39 does not recite a method step. Therefore, it is unclear whether the recitation of Claim 39 is intended to describe a structural component of the solid support or whether the recitation is intended to supplement the method steps of Claim 31 by requiring additional steps. Furthermore, it is unclear what method steps may be intended by the recitation.

c. Claims 40-48 are indefinite in Claim 40 because the claim is drawn to a process for preparing a solid support but the method steps do not require or describe solid support

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preparation. It is suggested that Claim 40 be amended to define steps for preparing the solid support.

d. Claims 32 and 41 are each indefinite for the recitation "said biomolecule is endogenous thereto" because it is unclear what "thereto" refers to. It is suggested that Claims 32 and 41 be amended to define "thereto".

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 31-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Heller et al (U.S. Patent No. 6,281,006, filed 24 August 1998).

Regarding Claim 31, Heller et al disclose a process for preparing a solid support comprising: providing a surface coating (i.e. working electrode, Column 4, line 50-Column 5, line 60) having a surface reactive site thereon and contacting the surface coating with a polymerizable composition (i.e. redox polymer, Column 5, line 60-Column 6, line 67) under

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polymerizable conditions to produce a surface tethered polymer with at least one absorbing moiety for absorbing a biomolecule (Column 9, lines 32-51).

Regarding Claim 32, Heller et al disclose the process wherein a portion of the biomolecule is endogenous thereto i.e. the first member of the ligand-ligand receptor pair is immobilized within the redox polymer (Column 2, lines 7-10 and Column 3, lines 21-26).

Regarding Claim 33, Heller et al disclose the process wherein a portion of the biomolecule is an exogenous linking moiety i.e. the biomolecule is avidin or streptavidin which is a linking moiety for biotinylated DNA or peptide DNA (Column 2, lines 22-30 and Column 3, lines 21-26).

Regarding Claim 34, Heller et al disclose the process wherein the polymer is substantially linear (Column 2, lines 50-53 and Fig. 3).

Regarding Claim 35, Heller et al disclose the process wherein the polymer is a vinyl polymer (Column 6, line 44-Column 7, line 45).

Regarding Claim 36, Heller et al disclose the process wherein the absorbing moiety is an amine group (Column 7, line 26-Column 8, line 34).

Regarding Claim 37, Heller et al disclose the process wherein the vinyl polymer is a poly vinyl amine (Column 7, lines 26-35).

Regarding Claim 38, Heller et al disclose the process wherein the biomolecule is an oligonucleotide or polynucleotide (Column 1, lines 5-14).

Regarding Claim 39, Heller et al disclose the process further comprising an additional non-nucleotidic polymer tethered to the surface coating comprising additional absorbing moieties i.e. Heller et al disclose a plurality of electrodes in an array wherein plurality of polymers are tethered to the array and isolated from each other thereby providing additional polymers tethered to the surface as claimed (Column 5 lines 35-67). It is noted that the claims are drawn to "additional", not "different" polymers. As such, Heller et al discloses the process as claimed.

8. Claims 31-33, 35-42 and 44-48 are rejected under 35 U.S.C. 102(e) as being anticipated by E. Heller & Co. (WO 99/67628, published 29 December 1999).

Regarding Claim 31, E. Heller & Co. disclose a process for preparing a solid support comprising: providing a surface coating (i.e. working electrode, page 13-14) having a surface reactive site thereon and contacting the surface coating with a polymerizable composition (i.e. redox polymer, page 15, line 23-page 19) under polymerizable conditions to produce a surface tethered polymer with at least one absorbing moiety for absorbing a biomolecule (Claim 1, page 7, lines 16-18 and Fig. 10).

Regarding Claim 32, E. Heller & Co. disclose the process wherein a portion of the biomolecule is endogenous thereto i.e. the biomolecule (water soluble nucleic acids) permeate through the redox polymer (page 16, lines 2-5). As such, the biomolecules are within the polymer and therefore endogenous thereto.

Regarding Claim 33, E. Heller & Co. disclose the process wherein a portion of the biomolecule is an exogenous linking moiety i.e. the biomolecule extends from the polymer to capture a binding partner (page 37 and Fig. 10),

Regarding Claim 35, E. Heller & Co. disclose the process wherein the polymer is a vinyl polymer (page 18, lines 5-10).

Regarding Claim 36, E. Heller & Co. disclose the process wherein the absorbing moiety is an amine group (page 18, lines 5-10).

Regarding Claim 37, E. Heller & Co. disclose the process wherein the vinyl polymer is a poly vinyl amine (page 18, lines 5-10).

Regarding Claim 38, E. Heller & Co. disclose the process wherein the biomolecule is an oligonucleotide or polynucleotide (page 21, lines 1-16).

Regarding Claim 39, E. Heller & Co. disclose the process further comprising an additional non-nucleotidic polymer tethered to the surface coating comprising additional absorbing moieties i.e. E. Heller & Co. disclose a plurality of electrodes in an array (page 11, line 23-page 12, line 17) wherein plurality of polymers are tethered to the array and isolated from each other thereby providing additional polymers tethered to the surface as claimed (page 15, lines 24-26). It is noted that the claims are drawn to "additional", not "different" polymers. As such, Heller et al discloses the process as claimed.

Regarding Claim 40, E. Heller & Co. disclose a process for preparing a solid support comprising: providing a surface coating (i.e. working electrode, page 13-14) having a surface reactive site thereon and contacting the surface coating with a polymerizable composition (i.e. redox polymer, page 15, line 23-page 19) under polymerizable conditions to produce a surface tethered polymer with at least one absorbing moiety for absorbing a biomolecule (Claim 1, page 7, lines 16-18 and Fig. 10) wherein the polymer is "capable of assuming" a plurality of conformation (i.e. the polymer contains mobile functional groups, page 15, line 24-page 16, line 5). Therefore, the polymer is capable of assuming a plurality of conformations as claimed. Furthermore the polymer exhibits sufficient mobility and flexibility such that the number of biomolecules absorbed is maximized i.e. the polymer is fluid-like and contains mobile functional groups (page 15, line 24-page 16, line 5) whereby the number of biomolecules (probes) are maximized for optimal hybridization (page 47, line 24-page 50).

Regarding Claim 41, E. Heller & Co. disclose the process wherein a portion of the biomolecule is endogenous thereto i.e. the biomolecule (water soluble nucleic acids) permeate through the redox polymer (page 16, lines 2-5). As such, the biomolecules are within the polymer and therefore endogenous thereto.



Regarding Claim 42, E. Heller & Co. disclose the process wherein a portion of the biomolecule is an exogenous linking moiety i.e. the biomolecule extends from the polymer to capture a binding partner (page 37 and Fig. 10),

Regarding Claim 44, E. Heller & Co. disclose the process wherein the polymer is a vinyl polymer (page 18, lines 5-10).

Regarding Claim 45, E. Heller & Co. disclose the process wherein the absorbing moiety is an amine group (page 18, lines 5-10).

Regarding Claim 46, E. Heller & Co. disclose the process wherein the vinyl polymer is a poly vinyl amine (page 18, lines 5-10).

Regarding Claim 47, E. Heller & Co. disclose the process wherein the biomolecule is an oligonucleotide or polynucleotide (page 21, lines 1-16). Claim 47 is drawn to Claim 38. However, Claims 38 and 47 recite identical limitations. The identical limitations are interpreted by the examiner to be typographical errors. For purposes of examination, Claim 47 is interpreted as being drawn to Claim 40.

Regarding Claim 48, E. Heller & Co. disclose the process further comprising an additional non-nucleotidic polymer tethered to the surface coating comprising additional absorbing moieties i.e. E. Heller & Co. disclose a plurality of electrodes in an array (page 11, line 23-page 12, line 17) wherein plurality of polymers are tethered to the array and isolated from each other thereby providing additional polymers tethered to the surface as claimed (page 15, lines 24-26). It is noted that the claims are drawn to "additional", not "different" polymers. As such, Heller et al discloses the process as claimed.

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9. Claims 34 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by E. Heller & Co. (WO 99/67628, published 29 December 1999) as defined by Heller et al (U.S. Patent No. 6,281,006, filed 24 August 1998).

Regarding Claims 34 and 43, The claims are drawn to a polymer wherein the polymer backbone is substantially linear. E. Heller & Co. (page 15-20) and Heller et al (Column 5, line 60-Column 7, line 50) describe identical polymers. Heller et al illustrate their polymers as being substantially linear (Column 2, lines 50-53 and Fig. 3). E. Heller & Co. do not illustrate their polymers. However, because E. Heller & Co. and Heller et al define identical polymers and because Heller et al illustrate the polymers as substantially linear, the polymers of E. Heller & Co. are considered linear as defined/illustrated by Heller et al .

### **Conclusion**

10. No claim is allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (703) 306-5878. The examiner can normally be reached on 6:30 TO 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones can be reached on (703) 308-1152. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-8724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.



BJ Forman, Ph.D.  
Patent Examiner  
Art Unit: 1634  
May 21, 2003